



# Steel Snapshot



## Low Embodied Carbon Steel Products

### What is low embodied carbon steel?

A 'low embodied carbon' steel product generally describes a product with lower embodied greenhouse gas emissions relative to an average steel product. As a steel user, it is important to understand what the claim constitutes and the basis on which it is made when making specification and procurement decisions.

A low embodied carbon steel product may be:

- **Actual** - made with low greenhouse gas emission technology.
- **Virtual** - where carbon accounting methodologies such as the mass balance approach.

### Are current low embodied carbon steel market offers comparable?

Many of the current low embodied carbon steel product offers are not directly comparable as the methodology used to make low embodied carbon claims varies. For example, some products use renewable energy and offsets as the method for stated carbon reductions while others are based on decarbonisation projects and GHG emissions savings which may be actual or virtual.

### How does low embodied carbon steel compare with a 'green steel', 'net zero' or 'carbon neutral' steel product?

There is currently no agreed definition for 'green steel'. 'Carbon neutral' or 'net zero' steel usually refers to the purchase of offsets to neutralise the emissions generated during the iron and steelmaking process.

### How do I know that the emission reduction claims made by steel companies are credible?

Look for claims that are third-party verified by credible certification schemes, like Climate Active and Responsible Steel, or validation through Environmental Product Declarations (EPDs) published in line with the EN15804 standard.

# What are the differences between actual vs virtual low embodied carbon steel products?

## Actual low embodied carbon products:

### Low emissions steelmaking technology

In this approach, the benefits of greenhouse gas reductions are averaged across all steel manufactured.

For example,

- Hydrogen-based Direct Reduced Iron – Electric Arc Furnace (H2-DRI-EAF),
- 100% scrap-based steelmaking using 100% renewable energy,
- increasing use of scrap steel, or
- introducing alternative reductants such as biocarbon (sometimes referred to as biochar).

### Can customers claim emission reductions in their GHG reporting if you purchase a low embodied carbon steel product?

Possibly. It depends on how emission reductions of the steel product are captured and calculated. Generally speaking, ‘actual’ reductions can be claimed (see table below for further information).

## Virtual low embodied carbon products:

### Embodied carbon reductions

### achieved through carbon accounting

In this approach, the benefits of greenhouse gas reductions are bundled and allocated to a limited range of products or brands within the production footprint.

For example,

- mass balance approach where a desirable property (e.g., recycled content, process efficiency, renewable energy, increased recycled content) is assigned to a limited range of products or brands.
- ‘green steel certificates’ where a manufacturer accumulates emission reductions from a range of activities and allocates them to sales with green steel certificates.

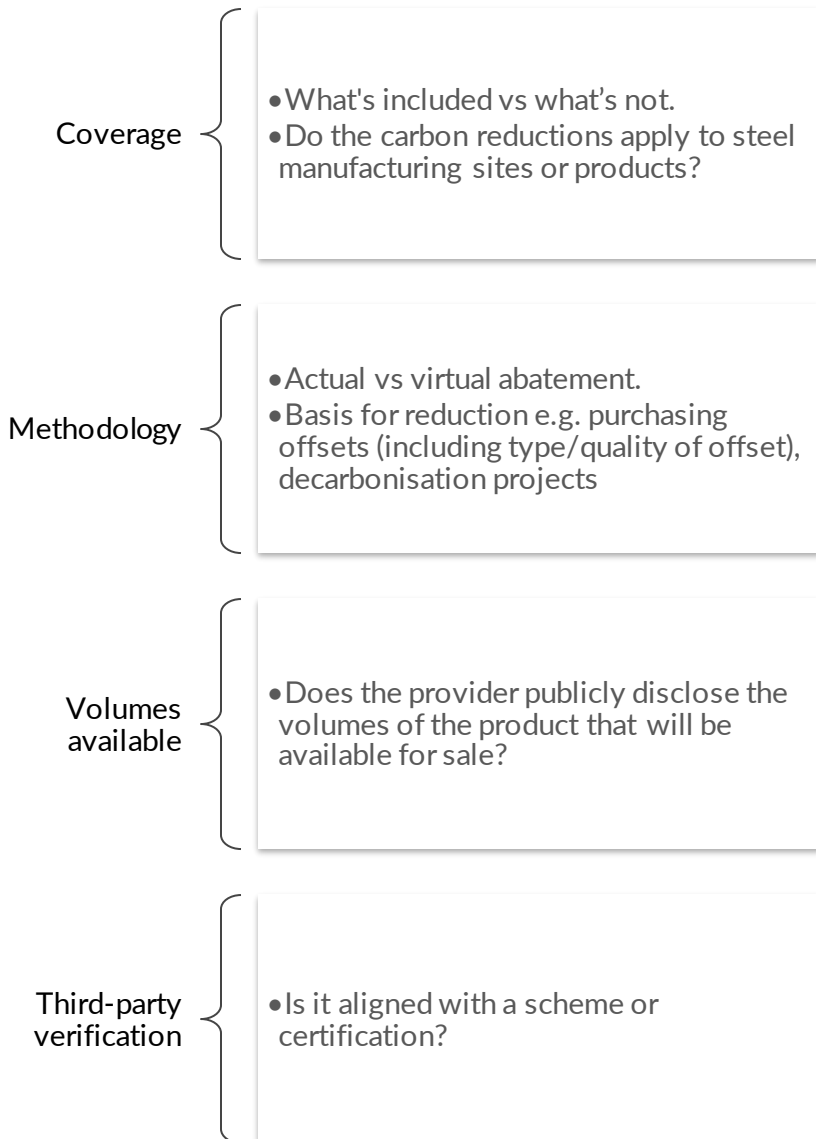
In the absence of clear methodology and claims guidance, this approach can present challenges of double counting emissions reductions.

Table 1 – Acceptance of low embodied carbon steel offers in common frameworks

Recognised by ...	Green Star	IS Rating	Living Building Challenge	GHG protocol Scope 3 reporting
<b>Actual low embodied carbon product validated via an EPD published in line with EN15804</b> e.g. H2-DRI-EAF	Y	Y	Y	Y
<b>Climate Active certification (carbon neutral via offsets and certified by Climate Active program)</b>	Y	Y	N	N
<b>‘Virtual offers’ (achieved via carbon accounting) e.g. mass balance approach or ‘green steel certificates’</b>	N	N	N	Grey area and will depend on how emissions reductions are captured and calculated

Table 1 (p3) highlights the acceptance of low embodied carbon steel product offers in common frameworks including Green Star, IS Rating, Living Building Challenge and the GHG Protocol.

# What should you look for when purchasing a low-embodied carbon product?



# Can an EPD help identify a low embodied carbon steel product?

An Environmental Product Declaration (EPD), published in line with EN15804, is a credible way of identifying a low embodied carbon product.

An EPD identifies a product's environmental impact, including global warming potential (GWP), across its lifecycle. Within an EPD you can find the GWP associated with that product, broken down by lifecycle stage.

It is important to consider the GWP of steel products, alongside other factors that can impact sectoral decarbonisation. For example, what is the steelmaker's commitment to climate action or certifications that reward decarbonisation across all types of steelmaking, such as ResponsibleSteel™?

Initiatives like ResponsibleSteel™, use new methodologies to ensure that the carbon emissions of steel products are calculated on a like-for-like basis, irrespective of the input materials used and the steel production technology.

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